

EXHIBIT 3

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crest value

being used for measurement.

(NPS/NID) 759-1984r, 301-1976s

(2) (ac voltmeter) The highest ratio of peak to rms voltage that can be applied to an ac voltmeter before overload sets in. The crest factor may depend upon the full-scale setting of the meter. (NPS) 300-1988r

(3) (of a periodic function) The ratio of its crest (peak, maximum) value to its root-mean-square (rms) value.

(PE/TR) C57.12.80-1978r

(4) (electrical measurements in power circuits) (of a periodic function) The ratio of the peak value to the rms value $cf = y_p/y_{rms}$. (PE/PSIM) 120-1989r

(5) (of a periodic function) The ratio of the peak value of a periodic function (y_{peak}) to the rms value (y_{rms}); $cf = y_{peak}/y_{rms}$. (IA/PSE) 1100-1999

(6) (pulse carrier) The ratio of the peak pulse amplitude to the root-mean-square amplitude. *See also:* carrier.

(IM/AP/WMA/ANT) 194-1977w, 145-1983s

(7) (of an rms voltmeter) The highest ratio of peak to rms voltage that can be applied to an ac voltmeter before overload sets in. The crest factor may depend on the full-scale setting of the voltmeter. (NPS) 325-1996

(8) The ratio of the peak value to the rms value of an ac waveform measured under steady-state conditions. It is unitless, and the ratio for a pure sine wave is equal to $\sqrt{2}$.

$$cf = \frac{V_{in, pk}}{V_{in, rms}}$$

where

V_{in} = the voltage at the user input terminals.

(PEL) 1515-2000

crest value (1) (peak value) (power and distribution transformers) The maximum absolute value of a function when such a maximum exists.

(PE/C/TR) 1313.1-1996, C57.12.80-1978r

(2) (of a wave, surge, or impulse) The maximum value that a wave, surge, or impulse attains.

(SPD/PE) C62.11-1999, C62.62-2000

(3) (surge arresters) The maximum value that an impulse attains. *Synonym:* peak value.

(SPD/PE) C62.22-1997, C62.1-1981s, C62.11-1987s, 2-1978w

crest voltmeter A voltmeter depending for its indications upon the crest or maximum value of the voltage applied to its terminals. *Note:* Crest voltmeters should have clearly marked on the instrument whether readings are in equivalent root-mean-square values or in true crest volts. It is preferred that the marking should be root-mean-square values of the sinusoidal wave having the same crest value as that of the wave measured. *See also:* instrument. (EEC/PE) [119]

crest working line voltage (vlwm) (thyristor) The highest instantaneous value of the line voltage excluding all repetitive and nonrepetitive transient voltages, but including voltage variations. (IA/IPC) 428-1981w

crest working voltage (semiconductor rectifiers) (between two points) The maximum instantaneous difference of voltage, excluding oscillatory and transient overvoltages, that exists during normal operation. *See also:* semiconductor rectifier stack; rectification. (IA/EEC/PCON) [62], [110]

crevice corrosion Localized corrosion as a result of the formation of a crevice between a metal and a nonmetal, or between two metal surface. (IA) [59], [71]

criteria Parameters against which the CASE tool is evaluated, and upon which selection decisions are made.

(C/SE) 1209-1992w

critical angle (fiber optics) When light propagates in a homogeneous medium of relatively high refractive index (n_{high}) onto a planar interface with a homogeneous material of lower index (n_{low}), the critical angle is defined by $\arcsin(n_{low}/n_{high})$. *Note:* When the angle of incidence exceeds the critical angle, the light is totally reflected by the interface. This is termed "total internal reflection." *See also:* step index profile; ac-

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ceptance angle; angle of incidence; reflection; refractive index; total internal reflection. (Std100) 812-1984w

critical anode voltage *See:* gas tube; breakdown voltage.

critical branch (health care facilities) A subsystem of the Emergency System consisting of feeders and branch circuits supplying energy to task illumination, special power circuits, and selected receptacles serving areas and functions related to patient care, and which can be connected to alternate power sources by one or more transfer switches during interruption of normal power source. (NEC/NESC/EMB) [47], [86]

critical build-up resistance (rotating machinery) The highest resistance of the shunt winding circuit supplied from the primary winding for which the machine voltage builds up under specified conditions. (PE) [9]

critical build-up speed (rotating machinery) The limiting speed below which the machine voltage will not build up under specified condition of field-circuit resistance. *See also:* direct-current commutating machine. (PE) [9]

critical characteristics (1) (replacement parts for Class 1E equipment in nuclear power generating stations) (equipment) Those properties or attributes that are essential for performance of an equipment's safety function.

(PE/NP) 934-1987w

(2) (replacement parts for Class 1E equipment in nuclear power generating stations) (parts) Those properties or attributes of the part that are essential to the safety function of the equipment in which the part is installed. *Note:* Typical critical characteristics are attributes such as dimensions, materials, electrical and temperature parameters, output tolerances, and fluid viscosity. (PE/NP) 934-1987w

critical components Equipment whose failure will result in complete system or functional failure. (PE/NP) 933-1999

critical component temperature The temperature of semiconductor components that are most susceptible to malfunction from high temperature. (C/BA) 14536-1995

critical control command An MTM-Bus command that has significant effect on the operation of a module to a degree that, for added security, a message conveying such a command should be difficult to send unintentionally. This Standard provides that a message containing a critical control command has to be preceded by an Enable Module Control (EMC) message. If this procedure is not followed, a Command Sequence Error will occur. (TT/C) 1149.5-1995

critical controlling current (cryotron) The current in the control that just causes direct-current resistance to appear in the gate, in the absence of gate current and at a specified temperature. *See also:* superconductivity. (SPD/PE) 32-1972r

critical coupling That degree of coupling between two circuits, independently resonant to the same frequency, that results in maximum transfer of energy at the resonance frequency. *See also:* coupling. (EEC/PE) [119]

critical current (1) (superconductor) The current in a superconductive material above which the material is normal and below which the material is superconducting, at a specified temperature and in the absence of external magnetic fields. *See also:* superconductivity. (ED) [46]

(2) The first-stroke lightning current to a phase conductor which produces a critical impulse flashover voltage wave.

(PE/T&D) 1243-1997

critical damping The least amount of viscous damping that causes a single-degree-of-freedom system to return to its original position without oscillation after initial disturbance.

(PE/SUB) 693-1997

critical design review (CDR) (A) A review conducted to verify that the detailed design of one or more configuration items satisfy specified requirements; to establish the compatibility among the configuration items and other items of equipment, facilities, software, and personnel; to assess risk areas for each configuration item; and, as applicable, to assess the results of producibility analyses, review preliminary hardware product specifications, evaluate preliminary test planning, and evaluate the adequacy of preliminary operation and support

critical dimension

documents. *See also*: preliminary design review; system design review. (B) A review as in (A) of any hardware or software component. (C) 610.12-1990

critical dimension (waveguide) The dimension of the cross-section that determines the cutoff frequency. *See also*: waveguide. (EEC/PE) [119]

critical event simulation A simulation that is terminated by the occurrence of a certain event; for example, a model depicting the year-by-year forces leading up to a volcanic eruption, that is terminated when the volcano in the model erupts. *See also*: time-slice simulation. (C) 610.3-1989w

critical failure *See*: failure.

critical field (1) (magnetrons) The smallest theoretical value of steady magnetic flux density, at a steady anode voltage, that would prevent an electron emitted from the cathode at zero velocity from reaching the anode. *See also*: magnetron. (2) (nonlinear, active, and nonreciprocal waveguide components) In a gyromagnetic material that radio-frequency (rf) magnetic field level above which transfer of energy occurs from the uniform precession mode to spin waves; that is the field corresponding to nonlinear loss threshold. (MTT) 457-1982w

critical flashover voltage (CFO) The amplitude of voltage of a given waveshape that, under specified conditions, causes flashover through the surrounding medium on 50% of the voltage applications. (SPD/PE) C62.22-1997

critical freeze protection (electric pipe heating systems) The use of electric pipe heating systems to prevent the temperature of fluids from dropping below the freezing point of the fluid in important or critical outdoor (usually) piping systems at nuclear generating stations. An example of a critical freeze protection system is the heating for the nuclear service water system. (PE/EDPG) 622A-1984r, 622B-1988r

critical frequency (1) (data transmission) In radio propagation (by way of the ionosphere) the limiting frequency below which a wave component is reflected by, and above which it penetrates through, an ionospheric layer of vertical incidence. *Note*: The existence of the critical frequency is the result of electron limitation, that is, the inadequacy of the existing number of free electrons to support reflection at higher frequencies. (PE) 599-1985w

(2) (network or system) A pole or zero of a transfer or driving-point function. (CAS) [13]

(3) (of an ionospheric layer) The limiting frequency below which a normally-incident magneto-ionic wave component is returned by, and above which it penetrates through, an ionospheric layer. (AP/PROP) 211-1997

critical grid voltage (multielectrode gas tubes) The grid voltage at which anode breakdown occurs. *Note*: The critical grid voltage is a function of the other electrode voltages or currents and of the environment. *See also*: breakdown voltage. (ED) 161-1971w

critical head (power operations) The head at which the full-gate output of the hydroturbine equals the nameplate generator capacity. (PE/PSE) 858-1987s

critical heat flux The heat flux below which ignition is not possible. (DEI) 1221-1993w

critical high-power level (attenuator tubes) The radio-frequency power level at which ionization is produced in the absence of a control-electrode discharge. (ED) 161-1971w

critical humidity The relative humidity above which the atmospheric corrosion rate of a given metal increases sharply. (IA) [59]

critical hydro period (power operations) (electric power supply) Period when the limitations of hydroelectric energy supply due to water conditions are most critical with respect to system load requirements. (PE/PSE) 858-1987s, 346-1973w

critical impulse (of a relay) The maximum impulse in terms of duration and input magnitude that can be applied suddenly to a relay without causing pickup. (SWG/PE) C37.100-1992

critical impulse flashover voltage (CFO) (insulators) The crest value of the impulse wave that, under specified conditions, causes flashover through the surrounding medium on 50% of the applications. *See also*: impulse flashover voltage. (PE/T&D/SPD) 1410-1997, 32-1972r, 1243-1997

critical impulse time (of a relay) The duration of a critical impulse under specified conditions. (SWG/PE/PSR) C37.100-1992, C37.90-1978s

critical item (software) In configuration management, an item within a configuration item that, because of special engineering or logistic considerations, requires an approved specification to establish technical or inventory control at the component level. (C) 610.12-1990

criticality (1) (power operations) The state of an assembly of fissionable material in which a stable, self-sustaining chain reaction exists. At this condition a nuclear reactor will produce energy at a constant rate and the effective multiplication factor k_{eff} is exactly equal to 1. (PE/PSE) 858-1987s

(2) (software) The degree of impact that a requirement, module, error, fault, failure, or other item has on the development or operation of a system. *Synonym*: severity. (C) 610.12-1990

(3) A subjective description of the intended use and application of the system. Software criticality properties may include safety, security, complexity, reliability, performance, or other characteristics. (C/SE) 1012-1998

criticality analysis A structured evaluation of the software characteristics (e.g., safety, security, complexity, performance) for severity of impact of system failure, system degradation, or failure to meet software requirements or system objectives. (C/SE) 1012-1998

critical jamming ratio The ratio of conduit diameter (D) to cable diameter (d) that could result in the cable wedging or jamming in the conduit during the cable pull. (PE/IC) 1185-1994

critical load (1) That part of the load that requires continuous quality electric power for its successful operation. (IA/PSE) 241-1990r

(2) Devices and equipment whose failure to operate satisfactorily jeopardizes the health or safety of personnel, and/or results in loss of function, financial loss, or damage to property deemed critical by the user. (IA/PSE) 1100-1999

critical magnetic field (superconductor) The field below which a superconductor material is superconducting and above which the material is normal, at a specified temperature and in the absence of current. *See also*: superconductivity. (ED) [46]

critical mating dimension (standard connector) Those longitudinal and transverse dimensions assuring nondestructive mating with a corresponding standard connector. (IM/HFIM) 474-1973w

critical overtravel time (of a relay) The time following a critical impulse until movement of the responsive element ceases just short of pickup. (SWG/PE/PSR) C37.100-1992, C37.90-1978s

critical path In the critical path method, a path whose sum of activity times is greater than or equal to the sum of activity times for any other path through the network. *Note*: This sum of activity times is the shortest possible completion time of the overall project. (C) 610.2-1987

critical path method (CPM) A project management technique in which the activities that constitute a project are identified, dependencies among the activities are determined, a network of parallel and sequential activities is produced, an estimated time is assigned to each activity, and a sequence of activities taking the longest time (a critical path) is identified, determining the shortest possible completion time for the overall project. *See also*: program evaluation and review technique. (C) 610.2-1987

critical period That portion of the duty cycle that is the most severe, or the specified time period of the battery duty cycle. (PE/EDPG) 450-1995

critical piece first

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cross bar switch

critical piece first (software) A system development approach in which the most critical aspects of a system are implemented first. The critical piece may be defined in terms of services provided, degree of risk, difficulty, or other criteria. *See also:* top-down; bottom-up. (C) 610.12-1990

critical point (1) (feedback control system) (Nichols chart) The bound of stability for the $GH(j\omega)$ plot; the intersection of $|GH| = 1$ with $\arg GH = -180^\circ$.

(2) **(Nyquist diagram)** The bound of stability for the locus of the loop transfer function $GH(j\omega)$; the $(-1, j0)$ point.

(PE/IM/EDPG) [3], [120]

critical process control (electric pipe heating systems) The use of electric heat tracing systems to increase or maintain, or both, the temperature of fluids (or processes) in important or critical mechanical piping systems including pipes, pumps, valves, tanks, instrumentation, etc., in nuclear power generating stations. An example of an important or critical mechanical piping system is the safety injection system.

(PE/EDPG) 622A-1984r, 622B-1988r

critical range Metric values used to classify software into the categories of acceptable, marginal, or unacceptable.

(C/SE) 1061-1998

critical rate-of-rise of OFF-state voltage (thyristor) The minimum value of the rate of rise of principal voltage which will cause switching from the OFF-state to the ON-state.

(IA/IPC) 428-1981w

critical rate-of-rise of ON-state current (thyristor) The maximum value of the rate-of-rise of ON-state current that a thyristor can withstand without deleterious effect. *See also:* principal current. (ED) [46]

critical section (software) A segment of code to be executed mutually exclusively with some other segment of code which is also called a critical section. Segments of code are required to be executed mutually exclusively if they make competing uses of a computer resource or data item. *See also:* segment; computer; code; data; execute. (C/SE) 729-1983s

critical service loads Station auxiliary loads that are sensitive to power supply disturbances and that have an immediate effect upon power transmission or whose outages could cause damage to the equipment. (SUB/PE) 1158-1991r

critical short-circuit ratio (CSCR) The SCR corresponding to the operation at maximum available power (MAP); for typical inverter design, $CSCR = 2$. *Note:* The following operational characteristics are associated with CSCR:

- CSCR represents the borderline between "stable" and "unstable" operating regions. For SCR values lower than CSCR, the operation is in the "unstable" region of the ac voltage/dc power characteristic.

- If the operation is at unity power factor for systems at CSCR (i.e., the operation is at MAP), then the fundamental component of the temporary overvoltage (TOV_r) at full load rejection would be near to $\sqrt{2}$.

- A resonance near the second harmonic will occur for systems operating at CSCR.

(PE/T&D) 1204-1997

critical software (software verification and validation plans) (software) Software whose failure could have an impact on safety, or could cause large financial or social loss.

(C/SE) 1012-1986s, 610.12-1990, 730-1998

critical speed (rotating machinery) A speed at which the amplitude of the vibration of a rotor due to shaft transverse vibration reaches a maximum value. *See also:* rotor.

(PE) [9]

critical stroke amplitude The amplitude of the current of the lightning stroke that, upon terminating on the phase conductor, would raise the voltage of the conductor to a level at which flashover is likely. (SUB/PE) 998-1996

critical success factor (CSF) A business system performance measurement that combines with other CSFs to form a key performance indicator (KPI). (C/PA) 1003.23-1998

critical system (health care facilities) A system of feeders and branch circuits in nursing homes and residential custodial care

facilities arranged for connection to the alternate power source to restore service to certain critical receptacles, task illumination and equipment.

(EMB) [47]

critical temperature (superconductor) The temperature below which a superconductive material is superconducting and above which the material is normal, in the absence of current and external magnetic fields. *See also:* superconductivity.

(ED) [46]

critical torsional speed (rotating machinery) A speed at which the amplitude of the vibration of a rotor due to shaft torsional vibration reaches a maximum value. *See also:* rotor.

(PE) [9]

critical travel (of a relay) The amount of movement of the responsive element of a relay during a critical impulse, but not subsequent to the impulse.

(SWG/PE/PSR) C37.100-1992, C37.90-1978s

critical value Metric value of a validated metric that is used to identify software that has unacceptable quality.

(C/SE) 1061-1998

critical voltage (1) (magnetrons) The highest theoretical value of steady anode voltage, at a given steady magnetic flux density, at which electrons emitted from the cathode at zero velocity would fail to reach the anode. (ED) 161-1971w

(2) **(relay)** *See also:* relay critical voltage.

critical-voltage parabola (magnetrons) (cutoff parabola) The curve representing in Cartesian coordinates the variation of the critical voltage as a function of the magnetic induction. *See also:* magnetron. [84]

critical withstand current (surge) (impulse) The highest crest value of a surge of given waveshape and polarity that can be applied without causing disruptive discharge on the test specimen. (PE) [8]

CROM *See:* control read-only memory.

Crookes dark space *See:* cathode dark space.

Crosby *See:* cable clamp.

Crosby clip *See:* cable clamp.

cross acceleration (accelerometer) The acceleration applied in a plane normal to an accelerometer input reference axis.

(AES/GYAC) 528-1994

crossarm A horizontal member (usually wood or steel) attached to a pole, post, tower or other structure and equipped with means for supporting the conductors. *Note:* The crossarm is placed at right angles to conductors on straight line poles, but splits the angle on light corners. *See also:* tower.

(T&D/PE) [10]

crossarm guy A tensional support for a crossarm used to offset unbalanced conductor stress. (T&D/PE) [10]

cross-assembler (software) An assembler that executes on one computer but generates machine code for a different computer. (C) 610.12-1990

cross-axis sensitivity (accelerometer) The proportionality constant that relates a variation of accelerometer output to cross acceleration. This sensitivity varies with the direction of cross acceleration, and is primarily due to misalignment.

(AES/GYAC) 528-1994

crossband transponder (navigation) A transponder that replies in a different frequency band from that of the received interrogation. *See also:* navigation.

(AES/GCS/RS) 172-1983w, 686-1982s, [42]

crossbar switch (1) A switch having a plurality of vertical paths, a plurality of horizontal paths, and electromagnetically-operated mechanical means for interconnecting any one of the vertical paths with any one of the horizontal paths.

(PE/EDPG) [3]

(2) A switch having vertical and horizontal paths and an electromagnetically operated mechanical means for interconnection of any one vertical path with any one horizontal path. *See also:* step-by-step switch. (C) 610.7-1995

cross bar switch A relay-operated device that makes a connection between a line in a set of lines and a line in another set,